WHAT IS CLAIMED IS:

1. A disk array system comprising:

a disk controller connected to a host system via a channel path;

a maintenance terminal connected to the disk controller; and

a disk array connected to the disk controller via a disk channel, said disk array being composed of a plurality of drive boards each mounting thereon a plurality of disk drives connected to wiring on the board, and a common board provided with a plurality of connectors for connecting the wiring on each of the drive boards to wiring for the disk channel, the a plurality of drive boards being detachably mounted on the common board via the plurality of connectors,

wherein said disk controller defines a part of the drive boards in the disk array as spare boards and the rest as active boards, manages (N + 1) pieces of the disk drives ($N \geqq 2$) mounted on different drive boards in a group of active drive boards as a logical group, dispersively allocates a memory area for storing error correction information generated in each logical group to the (N + 1) pieces of disk drivers or fixedly allocates the memory area to a specific

disk drive, and controls the writing and reading of data in the disk array,

the disk controller comprising:

means for reorganizing logical groups when failure occurs in any active disk drive in the disk array, after storing the same data as that stored in disk drives on the faulty board on which a faulty drive is mounted into corresponding one of the disk drives on the substitution board selected from among a group of spare drive boards, so that each logical group to which one of disk drives on the faulty board belongs includes a new disk drive on the substitution board in place of the disk drive on the faulty board; and

means for informing said maintenance terminal that the faulty board is replaceable after the reorganization of the logical groups is completed.

2. A disk array system according to Claim 1, wherein said means for reorganizing the logical groups comprises:

means for writing data regenerated based upon data read out from the other plural disk drives that belong to the same logical group as the faulty drive into one of the substitution disk drives on the

substitution board in place of the faulty drive; and

means for sequentially copying data read out from normal disk drives mounted on the faulty board into the other of the substitution disk drives on the substitution board.

3. A disk array system according to Claim 1, wherein

said common board is provided with a plurality of bypass circuits for selectively bypassing each connector for connecting to the drive board from wiring for the disk channel; and

said disk controller is provided with means for switching one of the bypass circuits corresponding to the connector of the faulty board to a bypassed state after the reorganization of the logical groups is completed.

4. A disk array system according to Claim 1, wherein said disk controller manages a recovered board as a spare drive board when the recovered board is connected to a connector of the faulty board again.

5. A disk array system according to Claim 1, wherein said disk controller has a board management

table for managing each of said drive boards forming the disk array according to a status code that changes in the order of a normal state, an exchange waiting state and a spare state, and said disk controller manages a board in a normal state as the active board and a board in a spare state as the spare board.

6. A disk array system according to Claim 1, wherein:

said connectors for connecting with the drive boards are located on the common board in two-dimensional arrangement having coordinate values on the X-axis and the Y-axis, and the plurality of disk drives are arranged on each drive board in a direction of the Z-axis;

each of said logical group is formed by (N + 1) pieces of disk drives having the same X coordinate value, the same Z coordinate value and different Y coordinate value; and

said means for reorganizing logical groups selects as the substitution board a drive board having the same Y coordinate value as that of the faulty board from among a group of spare drive boards, and correlates the disk drives on the faulty board and substitution disk drives on the substitution

board according to respective Z coordinate values.

7. A failure recovering control method executed by a disk controller in a disk array system composed of the disk controller connected to a host system and a maintenance terminal, and a disk array connected to the disk controller via a disk channel, the disk array being composed of a plurality of drive boards each mounting thereon a plurality of disk drives connected to wiring on the board, and a common board provided with a plurality of connectors for connecting the wiring on each of the drive boards to wiring for the disk channel, the plurality of drive boards being detachably mounted on the common board via the plurality of connectors,

wherein said disk controller defines a part of the drive boards in the disk array as spare boards and the rest as active boards, manages (N + 1) pieces of disk drives ($N \geqq 2$) mounted on different drive boards in a group of active drive boards as a logical group, dispersively allocates a memory area for storing error correction information generated in each logical group to the plurality of disk drives or fixedly allocates the memory area to a specific disk drive, and controls the writing and reading of

data in the disk array,

the method comprising the steps of:

selecting a substitution board to be used in place of a faulty board on which a faulty drive is mounted from among a group of said spare drive boards when failure occurs in any active disk drive in the disk array;

storing the same data as that stored in each disk drive on the faulty board into disk drives on the substitution board selected from among the group of spare drive boards;

reorganizing logical groups to each of which a disk drive on the faulty board belongs into new configuration including a new disk drives on the substitution board in place of the disk drive on the faulty board; and

informing the maintenance terminal that the faulty board is replaceable after the logical groups are reorganized.

8. A failure recovering control method according to Claim 7, wherein the step of storing data into the disk drives on the substitution board is comprised of:

a step of writing data regenerated based upon

data read out from the other plural disk drives that belong to the same logical group as the faulty drive into one of substitution disk drives on the substitution board in place of the faulty drive; and

a step of sequentially copying data read out from normal disk drives mounted on the faulty board into the other of the substitution disk drives on the substitution board.

9. A failure recovering control method according to Claim 7, wherein the common board is provided with a plurality of bypass circuits for selectively bypassing each connector for connecting to the drive board from wiring for the disk channel; and the control method further comprising a step of switching one of the bypass circuits corresponding to a connector of the faulty board to a bypassed state after the reorganization of the logical groups.